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ABSTRACT

A study examined whether billboard advertising of tobacco and alcohol products is differentially targeted toward White, Black, Asian, and Hispanic neighborhoods. The study analyzed 901 billboards in neighborhood commercial districts in San Francisco, California, giving particular attention to tobacco and alcohol billboards. Neighborhood census data were merged with billboard data to address this question. The study also proposes a theoretical model to explain how this medium is effective. The social aspects of drinking and smoking are posited to be important positive product attributes. The study suggests that the modeling of social cues can serve to motivate product use, disinhibit behavioral restraints, and reinforce existing habits. The data suggest that: (1) across all billboard advertising of products and services, tobacco (19%) and alcohol (17%) products were the most heavily advertised; (2) Black and Hispanic neighborhoods had more tobacco and alcohol billboards than White or Asian neighborhoods; (3) Black neighborhoods had the highest per capita rate of billboard advertising; and (4) there were more Black models per 1,000 Black people than there were ethnic models for other ethnic groups. Furthermore, the analyses of the content of the billboards revealed that alcohol and cigarette advertisements use social modeling cues such as anticipated rewards, attractive models, and similarity. This understanding of social influence and modeling on billboards should provide health professionals with information to counter the strategies of tobacco and alcohol advertisers. (One figure and 4 tables of data are included, and 56 references are attached.) (Author/SR)

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ALCOHOL AND CIGARETTE ADVERTISING ON BILLBOARDS: TARGETING WITH SOCIAL CUES

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Alcohol and Cigarette Advertising on Billboards: Targeting with Social Cues

Abstract

This study reports an analysis of 901 billboards in Neighborhood Commercial Districts in San Francisco, California. Particular attention was given to tobacco and alcohol billboards. The study examines whether billboard advertising of tobacco and alcohol products is differentially targeted toward white, black, Asian, and Hispanic neighborhoods. Neighborhood census data were merged with billboard data to address this question. In addition, we propose a theoretical model to explain how this medium is effective. The social aspects of smoking and drinking are posited to be important positive product attributes. We suggest that the modeling of social cues can serve to motivate product use, disinhibit behavioral restraints, and reinforce existing habits. The data suggest that: (1) across all billboard advertising of products and services, tobacco (19%) and alcohol (17%) products were the most heavily advertised, (2) black and Hispanic neighborhoods had more tobacco and alcohol billboards than white or Asian neighborhoods, (3) black neighborhoods had the highest per capita rate of billboard advertising, and (4) there were more black models per 1,000 black people than there were ethnic models for other ethnic groups. Furthermore, the analyses of the content of the billboards reveal that alcohol and cigarette advertisements use social modeling cues such as anticipated rewards, attractive models, and similarity. This understanding of social influence and modeling on billboards should provide health professionals with information to counter the strategies of tobacco and alcohol advertisers.

Alcohol and Cigarette Advertising on Billboards: Targeting with Social Cues

The fact that billboards have long been known as "the chosen medium of cigarette and liquor companies" (Hamel & Schreiner, 1988), and the current debate concerning the possible extension of the broadcast ban on tobacco advertising to alcoholic beverages make an investigation of billboard advertising of both liquor and cigarettes quite salient. Research indicates that the number of cigarette ads in magazines has declined since the mid-eighties (Basil & Schooler, 1990). Industry analysts report that several tobacco companies have shifted advertising dollars from print and into outdoor media (Gloede, 1985). In the face of flat sales and the specter of a long-term decline in cigarette smoking, outdoor advertising has become more attractive to tobacco companies because of its cost-efficiency (Gloede, 1985).

Over $1.2 billion was spent on outdoor advertising in 1985 (Thomas, 1985), with tobacco and alcohol companies accounting for over 20 percent (American Medical Association, 1989; Flood, 1988; Hamel & Schreiner, 1988; Davis, 1987; Gloede, 1985; Thomas, 1985). The majority of top ten outdoor advertisers between 1985 and 1988 were either liquor or tobacco companies (Flood, 1988; *Advertising Age*, 1986). Outdoor advertising of tobacco products has grown from $7.3 million in 1970, which represents 2 percent of total tobacco advertising and promotion expenditures, to $302 million in 1986, or 13 percent of the total (Federal Trade Commission, 1988). Likewise, in 1986 the alcohol industry spent $100 million on outdoor advertising (Institute of Outdoor Advertising, 1987).

Billboard advertising is believed to be attractive to the tobacco and alcohol industries due to its broad exposure and the possibility that children are exposed (Davis, 1987). Billboards are hard to avoid. Although viewers are exposed to billboards for an average of only seven seconds, they will typically see a particular billboard several times per day (Hamel & Schreiner, 1988).

Another reason for the extensive use of billboards for liquor and cigarette advertising is this medium's cost-effectiveness in targeting geographically contained ethnic groups (Flood, 1988;

Edel, 1986). Some evidence suggests that liquor and tobacco billboards differentially target minority groups and the poor (McMahon, 1989). In 1985, for example, 90 percent of overall national brand advertising for eight-sheet (5 by 11 ft) billboards was targeted at black and Hispanic neighborhoods: Of the $16 million spent on national brand advertising, tobacco and liquor accounted for $13 million (Eight-Sheet Outdoor Advertising Association, 1986). Furthermore, 35 percent of total expenditures for eight-sheet advertising is spent on tobacco advertisements in black communities (Schultz, 1987). A 1987 survey conducted by the city of St. Louis found four times as many tobacco and alcohol ads in black neighborhoods than in white ones (Barbara, 1989; Epstein, 1988). The San Francisco Planning Department reported in a 1985 study that almost one in five billboards citywide advertised cigarettes or alcohol. In black neighborhoods, however, the ratio was one out of three (San Francisco Department of City Planning, 1986).

In the current study we are interested both in whether billboard advertising of tobacco and alcohol products is differentially targeted toward Asian, black, Hispanic and white neighborhoods and in a theoretical rationale to explain how billboard advertising for alcohol and tobacco may work.

Theoretical Framework

Alcohol and cigarette advertisements appear in a variety of media; we shall examine some of the persuasive techniques used in billboard advertising. It must be noted that "the powers of persuasion of any one medium depend not only on the medium *per se*, but on the type of product advertised, the nature of the message, and the types of people to whom one is advertising" (Cox, 1961, p. 172). We shall examine aspects of smoking and drinking that may be portrayed on billboards to attract consumers to either initiate, maintain, or perhaps increase their product use rates.

It is likely that alcohol and tobacco products represent a different kind of product class than items such as laundry detergents or motor oil. Some researchers assert that "all products -- no matter how mundane -- may carry a symbolic meaning" (Levy, 1959). In some cases, however,

the symbolic aspect is especially rich and salient: for example products associated with leisure and social activities (Holbrook & Hirschman, 1982). Certainly smoking and drinking are portrayed as important parts of relaxing and socializing in many ads. People may consider these experiential aspects of consumption when considering whether to use alcohol or tobacco products.

The experiential view asserts that the consequences of consumption appear in the fun that a consumer derives from a product -- the enjoyment that it offers and the resulting feeling of pleasure that it evokes (Klinger, 1971). Variables such as an individual's level of sensation seeking have been found to affect consumers' purchase decisions (Zuckerman, 1979). This type of consumption is oriented toward fun, amusement, fantasy, arousal, sensory stimulation, and enjoyment (Holbrook & Hirschman, 1982).

The symbolic aspects of cigarettes and liquor may be especially salient. Advertisements for these products may be effective to the extent that they provide information or cues that portray the products' positive subjective attributes. Therefore, the social implications of smoking and drinking are important product attributes.

Research demonstrates that social modeling strongly influences activities such as food and alcohol consumption (Bandura, 1986; Caudill & Marlatt, 1975; Garlington & Dericco, 1977; Rosenthal & McSweeney, 1979). In addition, social influences are important precipitants of tobacco use (Sussman, 1989). People learn from watching others. "The symbolic capacity to learn cognitive and behavioral skills through observation ... enables people to regulate their actions advantageously on the basis of knowledge gained vicariously about the likely benefits and risks of different courses of action" (Bandura, 1986, p. 283). Watching other people's actions produce good results encourages an individual to behave in a similar way. Modeling can motivate one to perform a behavior, weaken one's inhibitions against enacting threatening or prohibited activities (e.g., drinking under age, ignoring the health risks of smoking), and also reinforce behavior by providing normative sanctions. Moreover, modeling can alter observers' emotional reactions and value preferences (Rosenthal & Bandura, 1978). These latter functions are especially relevant to advertising.

"People form impressions of many social realities with which they have little or no contact from symbolic representations of society, mainly in the mass media" (Bandura, 1986, p. 324). Symbolic modeling via advertisements may not only vicariously motivate those who already smoke or drink to continue or increase their consumptory habits, but it may also disinhibit those who do not smoke or drink, encouraging them to start consuming products which are hazardous to their health. Furthermore, "model cues gain their greatest predictive value when the effects of actions are socially mediated and tied to social status" (Bandura, 1986, p. 297). The tenet that social approval is rewarding is basic to social psychology (Rosnow & Robinson, 1967). The fact that social acceptance and affection are common desires promotes the use of scenarios involving social attraction to sell products (Bandura, 1986, p. 325). Therefore, the social situations depicted in advertisements may be very important product attributes for experiential consumption.

The anticipated benefits or rewards of modeled behavior provide incentives for paying attention to how others behave (Bandura, 1986). People pay more attention to others' behavior when it produces rewarding outcomes. The benefits of modeled behavior are inferred partly from tangible evidence of positive results and partly from symbols that signify success. In terms of advertising, this refers to depictions of social rewards such as friendship and romance, as well as symbols of success such as expensive cars and fashionable clothing. These symbolically modeled positive outcomes should prompt individuals to attend to, learn, and perform the modeled behavior. In terms of advertising, depicting positive rewards accruing from product usage should render an ad more persuasive.

Characteristics of models depicted in an ad are also important persuasive tools. "The effectiveness of a communication is commonly assumed to depend to a considerable extent upon who delivers it" (Hovland, Janis & Kelley, 1953, p. 19). "Models who have status, competence, and power are more effective in prompting others to behave similarly than are models of lower standing" (Bandura, 1986, p. 207). Another important attribute of models is their attractiveness. Appearance, symbols of socioeconomic success, and style serve as signs of expertise and past successes. Therefore, the depiction of prestigious and beautiful people in advertisements may

induce one to perform a certain behavior because the model's attributes serve as clues that the behavior will elicit positive consequences.

"To the extent that receivers feel that a source is similar to themselves, or by extension to how they would like to think of themselves, considerable research suggests that they will be more easily persuaded" (Percy, 1983, p. 81). Models are more influential when their personal attributes are similar to those of the observer (O'Sullivan & Gilner, 1976). Similar communicators are thought to be more persuasive than dissimilar communicators because people seek the approval of similar people more than of dissimilar people (Petty & Cacioppo, 1981). Similarity facilitates disinhibition because it enhances the likelihood of one's behavior being equally successful. "The more alike observers are to models in status and characteristics, the greater is the likelihood that similar actions will produce comparable results" (Bandura, 1986, p. 297). Vicarious rewards are most apt to heighten motivation when observers perceive themselves to be similar to the models on relevant attributes (Berger, 1971; Paulus & Seta, 1975). If one does not consider oneself to be at all similar to the model, it is unlikely that the rewards will be personally relevant. Thus, depiction of irrelevant models will not serve as a vicarious motivator or disinhibitor. In the case of gender, for example, the consequences of same-sex models operate as more influential performance guides for observers than those of opposite-sex models (Bussey & Perry, 1976).

Billboards are set apart from other media by their ability to reach specific market segments, for example people who do not subscribe to newspapers and magazines, or geographically concentrated ethnic groups (Flood, 1988; Edel, 1986). Advertisers may use social cues on billboards to elicit the product use behavior depicted in the ads. "The source [i.e. model] in a persuasive communication provides the audience with information above and beyond the arguments presented in the message" (Petty & Cacioppo, 1981). Research has determined that various attributes can increase a model's likability and persuasiveness: these include rewarding outcomes (Bandura, 1986); physical attractiveness and status (Bandura, 1986; Berscheid & Walster, 1974); and similarity (Bandura, 1986; Rokeach, 1960; Byrne, 1971).

The processes described above form a model explaining how alcohol and tobacco advertisers use social modeling cues on billboards. This model is illustrated in Figure 1. We propose that the social aspects of smoking and drinking are important positive product attributes. Therefore, the social contexts in which alcohol and tobacco products are depicted in ads form persuasive cues for audience members. Models in ads and the contexts in which they are placed can serve to motivate product use, disinhibit behavioral restraints, and reinforce existing habits to the extent that they depict rewarding outcomes, are attractive, and are similar to viewers.

INSERT FIGURE 1 HERE

Research questions and hypotheses

This study examines rates of billboard advertising of tobacco and alcohol products targeted toward Asian, black, Hispanic, and white people. Our methods enhance previous findings of disproportionate placement of billboards through the inclusion of census data, the examination of Asian and Hispanic neighborhoods, and three alternative techniques of investigating disproportion. In addition, we analyze the content of the ads. Specifically, we examine the modeling of social cues on alcohol and tobacco billboards. We hypothesize the alcohol and tobacco billboards will be more likely to utilize social modeling than billboards advertising other products because the social aspects of consumption are very salient, important product attributes for alcohol and tobacco products. This reasoning leads us to propose the following hypotheses:

H_1: People are more likely to appear on billboards for alcohol and tobacco products than on billboards for other products.

Because the social aspects of smoking and drinking are very important, people are likely to be depicted in these ads.

H_2: Positive rewards are more likely to be modeled on alcohol and tobacco billboards than on billboards for other products.

Research suggests that modeled positive outcomes lead people to attend to, learn and perform the modeled behavior. Depicting positive rewards accruing from smoking and drinking should render the billboard advertisements more persuasive.

H_3: Attractive models are more likely to appear on alcohol and tobacco billboards than on billboards for other products.

Portraying prestigious and attractive people on alcohol and tobacco billboards likely prompts viewers to smoke and drink because the model's attributes serve as clues that drinking and smoking will elicit positive consequences.

H_4: Models on alcohol and tobacco billboards are more likely to be similar to audience members than models on billboards for other products.

Models who are similar to observers in status and characteristics are persuasive because similarity enhances the likelihood that smoking and drinking will produce comparable positive results.

Methods

Procedures

Between May 1985 and September 1987, the San Francisco Department of City Planning photographed all billboards in areas of the city zoned as neighborhood commercial districts (N=901). The approximately 210 neighborhood commercial districts in San Francisco consist of most commercial areas outside the downtown area. These areas are mixed commercial-residential in nature, being located within or close to residential areas (San Francisco Department of City Planning, 1986). The following analyses do not include billboards in other areas of the city such as downtown, Chinatown, or along freeways. Neighborhood commercial districts accounted for 67 percent of the billboard structures in San Francisco at the time of the survey (San Francisco Department of City Planning, 1986).

For each billboard, information was collected on location, size, and advertising content. Five trained coders examined the photographs for alcohol and tobacco advertisements and coded

them for language, number and ethnicity of models, themes, and product being promoted. In a random sample of 18 percent of the advertisements, interrater reliability was 92 percent.

To examine the question of the targeting of billboards at particular subsegments of the community, 1980 census data for San Francisco were merged with the billboard data described above. Specifically, census data on the number of white, black, Asian, and Hispanic people within each of the city's 156 census tracts were collected. Since each billboard was identified as being located within a city assessor's block number, each billboard block number was identified with the appropriate census tract.

Measurement

In order to examine social cues in billboards advertising, the content of all the billboards was coded.

Social cues. The depiction of people in an advertisement is necessary for the social aspects of the product to be emphasized. Therefore, the number of men and women portrayed on billboards was coded.

Reward cues. Because social aspects of consumption are most important, the rewards that people in billboard advertisements modeled were coded. Positive social outcomes were defined as (1) romance, (2) sociability and friendship, (3) recreation and vacationing, (4) sportiness and active life-styles, and (5) adventure or risk.

Attractiveness cues. The appearance and status of models is another influential message element. Model's attractiveness was coded according to the following categories: (1) rugged individualism or machismo, (2) sophistication or fashionableness, (3) sex appeal (i.e. coy model pose), (4) fame or expertise (i.e. celebrity), and (5) friendliness. In addition, the socio-economic status of the models in the ads (blue-collar, middle-class, and rich) was coded.

Similarity. Similarity of models and audience members has also been demonstrated to be a persuasive message characteristic (Bandura, 1986; Petty & Cacioppo, 1981). Therefore, the match between the ethnicity of models depicted in ads and the ethnicity of the target audience was analyzed.

Target audience. Three methods of estimating the target audience for billboard advertisements were used. First, the composition of neighborhoods within which the billboards were located was analyzed. A neighborhood was defined as a census tract. The ethnicity designation of each neighborhood was determined by its predominant ethnic group (white, black, Asian, or Hispanic). Ethnic group predominance required that the neighborhood be composed of at least 30 percent of a particular ethnic group. Those neighborhoods that had white populations over 55 percent and non-white populations over 30 percent were coded as mixed. This classification resulted in the following ethnic breakdown of neighborhoods: 50% white, 21% black, 10% Asian, 9% Hispanic, and 10% mixed.

Second, the ethnic makeup of the entire city was examined by using citywide data from the 1980 census. Billboards were still classified as being located within a certain type of neighborhood but the number of billboards within a given neighborhood was compared to the total number of those group members in the city. Thus, the number of billboards within ethnic neighborhoods that existed citywide for each 1,000 people of that ethnic group (i.e., billboards per capita) was determined. These calculations took into account those individuals who did not actually live in an area zoned as neighborhood commercial, but who might still be exposed to the billboard (e.g., while shopping, waiting for public transportation, or driving).

Third, the ethnicity of the models depicted in alcohol and tobacco advertisements was compared to the population figures. In this manner, the number of billboards depicting, for example, black models was compared to the number of blacks in San Francisco. This technique addresses the possibility that the ethnicity of models portrayed in ads is a targeting cue.

For the analyses of the modeling of social cues on alcohol and tobacco billboards, we utilized the first definition of ethnicity of neighborhood (ethnic group predominance).

Results

Description of population

Billboard advertisements by neighborhood ethnicity is summarized in Table 1. Across all billboards, tobacco (19%) and alcohol (17%) advertisements were most predominant. Black and Hispanic neighborhoods had proportionately more alcohol billboards than white or Asian neighborhoods [$F(4,885)=6.95$, $p \leq .001$]. Tobacco advertisements also appeared disproportionately in black and Hispanic neighborhoods, although this difference only approached statistical significance [$F(4.885)=2.22$, $p \leq .10$]. The type of tobacco and alcohol products varied across neighborhoods. Black neighborhoods were more likely than other neighborhoods to contain billboards advertising menthol cigarettes [$F(4,885)=10.62$, $p \leq .001$]. Advertising of beer was highest in Hispanic neighborhoods [$F(4,885)=11.94$, $p \leq .001$], while malt liquor advertisements appeared almost exclusively in black neighborhoods [$F(4,885)=9.29$, $p \leq .001$].

INSERT TABLE 1 HERE

Ethnic disproportion in placement of billboards

Table 2 shows the number of billboards located within a certain type of neighborhood for each 1,000 people of that ethnicity in San Francisco. This allows examination of the disproportion of billboards within neighborhood census tracts compared to citywide population. Citywide, there were approximately 1.3 billboards per 1,000 people; the rate in black neighborhoods was 2.2 per 1,000 black people. Alcohol and tobacco advertisements appear to be targeted disproportionately to blacks. The highest per capita rate of billboards advertising alcoholic beverages was in blacks neighborhoods (.50 per 1,000 black people). Moreover, there were .53 tobacco billboards for every 1,000 black people in San Francisco, which was more than twice the citywide rate (.22/1,000 people). Hispanics also appear to be disproportionately targeted with alcohol and tobacco billboards: for alcohol advertisements, the rate was .31 per 1,000 Hispanics, and for

tobacco advertisements, the rate was .24 per 1,000. Asians had by far the lowest rates of alcohol (0.07/1,000 Asians) and tobacco (0.09/1,000 Asians) billboard advertisements.

INSERT TABLE 2 HERE

We show the relationship between ethnicity of models in alcohol and tobacco ads and citywide population rates in Table 3. Citywide, the rates of alcohol ads showing ethnically matched (i.e. black model/1,000 black people) models was approximately twice as high for blacks (.45) than for the city in general (.22). In addition, there was a much higher incidence of black models in tobacco ads (.52) per 1,000 black people than the citywide per capita rate (.25).

INSERT TABLE 3 HERE

Modeling of social cues

In order to test our hypothesis that alcohol and cigarette advertisements emphasize the social aspects of smoking and drinking, we examined the model of social cues displayed in Figure 1. First we investigated the relationships posited by the model individually, moving from left to right. The numbered hypotheses refer to these associations. After these hypotheses were examined, we tested the entire model simultaneously.

The first hypothesis, that people are more likely to appear in alcohol and cigarette ads than in ads for other products, was supported [$F(1,802)=202.63$, $p \leq .001$]. Fifty-nine percent of cigarette and alcohol ads depicted people, whereas only 16 percent of billboard advertisements for other products portrayed models.

The second hypothesis, that positive rewards are more likely to appear in alcohol and cigarette ads than in ads of other products, was supported [$\chi^2=86.56$, $p \leq .001$]. The most prevalently modeled positive outcomes ensuing from drinking were romance [$F(1,257)=5.05$, $p \leq .05$] and sociability [$F(1,257)=10.50$, $p \leq .001$]. The most prevalently modeled positive

outcomes ensuing from smoking were sportiness and active life-styles [$F(1,257)=13.73$, $p \leq .001$], vacationing or recreation [$F(1,257)=15.56$, $p \leq .001$], and adventure or risk [$F(1,257)=4.15$, $p \leq .05$].

The third hypothesis, that attractive models are more likely to appear on alcohol and cigarette billboards than on billboards advertising other products, was supported [$\chi^2=115.45$, $p \leq .001$]. The most prevalent attractiveness cue on alcohol ads was sex appeal [$F(1,257)=7.07$, $p \leq .01$], and the most prevalent attractiveness cue on tobacco billboards was rugged individualism or machismo [$F(1,257)=68.30$, $p \leq .001$].

The fourth hypothesis stated that models on alcohol and tobacco billboards are more likely to be similar to audience members than models on billboards advertising other products. Across topics, the ethnicity of models matched the ethnicity of the neighborhood in which the billboard was located [$\chi^2=130.23$, $p \leq .001$]. It is apparent that advertisers try to use models of the same ethnicity as the neighborhood in which the ad is placed: 66 percent of ads in black neighborhoods depicted black models. Very few ads, however, used Hispanic models, and none of the alcohol or cigarette ads used Asian models. Probably due to the dearth of ads depicting Asian models, Asian neighborhoods had a higher proportion of ads without models. White models are also prevalent in Asian neighborhoods (18%) and in Hispanic neighborhoods (21%). Our hypothesis that this ethnic matching would be more likely for alcohol and tobacco ads than for ad for other products was supported [$\chi^2=111.33$, $p \leq .001$]. Forty percent of tobacco ads depicted models whose ethnicity matched the neighborhoods in which the billboards were located [$F(1,257)=95.22$, $p \leq .001$] and 24 percent of alcohol ads depicted ethnically matched models [$F(1,257)=8.38$, $p \leq .001$]. For billboards that advertise other products, only 7 percent of the models depicted were ethnically matched with the neighborhoods in which the billboards were located [$F(1,257)=108.53$, $p \leq .001$].

In order to test the full model of the relationship between the modeling of social cues and alcohol and tobacco advertising on billboards, we computed a hierarchical linear probability model. Because our dependent variable, whether a billboard advertised alcohol and tobacco products or

not, is dichotomous, we also computed a logistic regression which has no parametric assumptions that are violated. Because the responses are split relatively evenly between the categories (38% advertise alcohol and tobacco, 62% advertise other products), the results of the logistic regression were quite close to those of the linear probability model (Goodman, 1978). The results indicated that modeling social cues was related to billboards advertising smoking and drinking (see Table 4)

INSERT TABLE 4 HERE

Modeled social aspects of consumption predicted whether a billboard advertised alcohol and tobacco products or not [R^2=.32, $p \leq .001$]. The hierarchical linear probability model displayed in Table 4 allows us to examine how the various social cues were related to topic of billboards because the hierarchical procedure allows us to assess what each block of variables adds to the equation. Each block of predictor variables is assigned the variability, unique and overlapping, left to it at its own point of entry (Tabachnick & Fidell, 1989). The presence or absence of people in ads helped explain 20% of the variance in topic of the billboard advertisements [R^2 change=.20, $p \leq .001$]. The attributes of the models in the ads were also associated with advertising alcohol and tobacco products: reward cues predicted 7 percent of the variance [R^2 change=.07, $p \leq .001$], attractiveness cues predicted 4 percent [R^2 change=.04, $p \leq .001$], and finally, similarity predicted 1 percent [R^2 change=.01, $p \leq .01$].

It is interesting to note that among alcohol and tobacco billboards, content varied according to the ethnicity of the neighborhood in which a billboard was located. For reward cues, sportiness or active life-style was the most predominant positive outcome modeled on billboards located in white neighborhoods, and romance was the most predominant reward depicted on ads in black neighborhoods [X^2=56.89, $p \leq .001$]. Among the attractiveness cues, rugged individualism or machismo, and sex appeal were the two most prominent model attributes in white neighborhoods, and sex appeal appeared on 75 percent of alcohol and tobacco billboards in black neighborhoods [X^2=34.09, $p \leq .05$].

Conclusions

Data from this study illustrate that tobacco and alcohol are the most heavily advertised products on billboards, which agrees with advertising expenditure figures reported elsewhere (Flood, 1988; *Advertising Age*, 1986). In addition, this study of billboard advertising in San Francisco shows a preferential focus on black and Hispanic neighborhoods. We used three methods to analyze the proportion of advertisements directed toward different ethnic groups in San Francisco: the percentage of billboards in ethnically defined neighborhoods, the per capita rates of billboards located in these neighborhoods based on citywide population figures, and the per capita rates of ethnicity of models depicted on alcohol and tobacco billboards. Regardless of which method was utilized, blacks were the target of the largest proportion of alcohol and cigarette advertising with Hispanics a close second. Differences in the specific type of tobacco and alcohol product advertised (e.g., menthol cigarettes, beer/wine, hard alcohol, etc.) also varied by neighborhood ethnicity. These data provide strong empirical support for claims made in the popular press that such disproportions exist nationwide (Asimov, 1989; Barbara, 1989; Epstein, 1988; Ferrick, 1988).

It is instructive to consider these findings with respect to tobacco and alcohol consumption. In this regard, data suggest that blacks consume a large proportion of the hard liquor sold in the U.S. For example, blacks account for the consumption of almost half of rum, 41 percent of gin, over 50 percent of Scotch whiskies, over 77 percent of Canadian whiskies, and half the estimated 2.3 million cases of imported cognac (Ferrick, 1988; Djata, 1987). Our data are consistent with these consumption figures in that billboard advertising of hard liquor and malt liquor was highest in black neighborhoods. Almost all advertisements for cigarettes in black neighborhoods were for menthol cigarettes, consistent with consumption data showing that blacks are more likely than other ethnic groups to smoke menthol cigarettes (Davis, 1987). For example, Newport, Kool and Salem brands account for 60 percent of cigarettes purchased by blacks. According to industry and independent analysts, Newport's recent growth has in part been attributed to its ability to recruit younger blacks (Ferrick, 1988). These figures support the contention that a function of the

symbolic modeling provided by advertisements is the reinforcement of current product use habits through the provision of normative sanctions.

The nature of the product being advertised is associated with the social content of billboards. Analyses of ad content reveal that the social aspects of smoking and drinking are highly relevant product attributes for advertising tobacco and alcohol. The majority of alcohol and tobacco ads portrayed people. Moreover, alcohol and tobacco ads were more likely than ads for other product categories to depict rewarding outcomes and attractive models. In addition,, the data support the proposed relationship between audience characteristics and ad content. Model ethnicity in alcohol and cigarette ads was more likely to match the ethnicity of the neighborhoods in which the billboards were placed than was the case for other product categories.

These analyses of the content of billboard advertisements support our contention that the social aspects of smoking and drinking are strategically portrayed in ads to encourage people to initiate, maintain or increase their product use habits. Alcohol and cigarette advertisers appear to be utilizing social modeling cues such as anticipated rewards, attractive models, and similarity that have been demonstrated to prompt individuals to attend to, learn and perform the modeled behavior (Bandura, 1986). Alcohol and tobacco billboards do target consumers with social cues.

It is interesting to note that the reward and attractiveness cues utilized for alcohol differ from those used for tobacco. Billboards advertising alcohol were most likely to portray positive outcomes that involved more than one person: romance and sociability. Moreover, the most prevalent attractiveness cue on alcohol billboards was sex appeal. Alcohol advertisers appear to be using modeling cues to suggest that the consumption of alcoholic beverages will enhance one's social life, attracting dates and friends. Tobacco billboards, on the other hand, emphasized rewards that were more single-person oriented: sportiness, vacationing, and adventurousness. Appropriately, rugged individualism was the most prevalent attractiveness cue on tobacco billboards. The epitome of these ads is the Marlboro man, whose longevity doubtless signifies his success as a spokesman for Marlboro cigarettes. The reason alcohol advertisements stress themes

which involve dyads and groups may be the desire to avoid the negative connotations associated with drinking alone.

Social cues also differed according to the ethnicity of the target population. In white neighborhoods, sportiness was the most prevalent positive outcome modeled on tobacco and alcohol ads. In black neighborhoods, the emphasis in alcohol and tobacco ads was clearly on romance. In addition, sex appeal was by far the predominant attractiveness cue on these billboards in black neighborhoods. In general, tobacco and especially alcohol ads in black neighborhoods depicted much more seductive models and suggestive situations than ads in other neighborhoods.

The findings from this study should be interpreted in light of the following points. First, data from only one community were collected, leaving open the possibility that amount and type of billboard advertising in other cities or towns may be different from San Francisco. It should be noted, however, that our findings are consistent with anecdotal reports on billboard advertising found in the popular press and with a study in another city (St. Louis). Second, the pattern of billboard advertising changes over time. Therefore, the two year sample of billboards reported here may not be representative of current patterns. Third, billboard data were only collected from neighborhoods zoned as Neighborhood Commercial Districts. This excluded sections of San Francisco where some billboards are located (e.g., downtown, Chinatown, along freeways). These sections of town have billboards that may target shoppers, workers, or people driving by. Thus, it is possible that the location and content of billboards in other types of neighborhoods (e.g., non-residential) differed from those we coded in neighborhood commercial districts. However, since we coded a majority (67%) of billboards that exist in the city, these differences are probably minor. Finally, the dearth of Hispanic and Asian models in alcohol and cigarette ads was partly reflected in the preponderance of ads with no model or white models in these neighborhoods. White models were also predominant in "mixed" neighborhoods (i.e. those with at least 55% whites, as well as at least 30% minority). This suggests that Asians, Hispanics and those in "mixed" neighborhoods may emulate white behavior. Therefore, considerations of the

match between model ethnicity and neighborhood ethnicity likely do not reveal the complexity of how audience members respond to model's racial and ethnic characteristics.

By providing an understanding of persuasive techniques, especially social modeling, these data should provide public health professionals and neighborhood leaders with important information with which to counter the strategies of tobacco and alcohol advertisers. The content of alcohol and tobacco advertisements is the product of extensive formative research carried out by market researchers. Therefore, the content differences we discovered between ads targeted toward various ethnic groups doubtless reveal important message elements. This suggests that effective pro-health messages will those that also utilize these social modeling techniques. For example, smoking cessation ads directed at blacks may emphasize the romantic or social benefits that accrue to quitters, such as being more attractive, having fresher breath, and so forth.

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Table 1

Percentage of billboards with specific content by ethnicity of neighborhood

Billboard Content	Ethnicity of Neighborhood[1] White	Black	Asian	Hispanic	Mixed[2]	Overall
(N)	(446)	(190)	(90)	(78)	(83)	(901)
Automobiles	4	4	6	4	4	4
Airlines	2	4	4	0	1	2
Alcohol	13	23	11	33	13	17
Beer/Wine	6	4	1	24	7	7
Malt Liquor	0	6	0	0	0	1
Hard Liquor	7	13	10	9	6	4
Cigarettes	17	24	16	26	14	19
Menthol	5	17	1	5	4	7
Community Service	3	2	2	0	4	2
Cosmetics	1	2	0	0	1	1
Food	6	3	1	5	7	5
Gambling	3	4	3	5	7	4
Local Business	20	10	23	9	9	16
Local Event	5	5	2	0	7	4
Soft Drinks	4	3	3	1	2	3
National Business	9	8	11	4	13	9
TOTALS	100%	100%	100%	10	100%	100%

[1]The ethnicity designation for each neighborhood is determined by its predominant ethnic group. Ethnic group predominance is defined as that ethnic group which made up at least 30 percent of the population for a neighborhood.
[2]Neighborhoods that had white populations over 55 percent and non-white populations over 30 percent were coded as mixed.

Table 2

Number of billboards, alcohol and cigarette ads[1] per capita by location

	White	Black	Asian	Hispanic	Overall[2]
Population (citywide)	395,081	86,414	147,426	83,373	678,974
Billboards (in defined neighborhoods)	446	190	90	78	901
Billboard/Capita	1.13	2.21	0.61	0.94	1.33
Alcohol Ads	59	43	10	26	149
Alcohol Ads/Capita	0.15	0.50	0.07	0.31	0.22
Cigarette Ads	76	46	14	20	171
Cigarette Ads/Capita	0.19	0.53	0.09	0.24	0.25

[1]Billboards in "mixed" neighborhoods (at least 55% white and over 30% minority) are not included because this analysis uses citywide population figures. Therefore, only "pure types" of ethnic designations have been included.
[2]This total population figure is less than the sum of the groups because Hispanics are counted twice: once as persons of Spanish origin and again according to race (e.g., whites, blacks).

Table 3

Number and rate of alcohol and cigarette billboards depicting models of various ethnicities by citywide population rates[1]

	Race of Model					
	No model	White	Black	Asian	Hispanic	Total
Population		395,081	86,414	147,426	83,373	678,974
Alcohol Ads	76	22	39	0	8	149
Alcohol Ads /Capita		.05	.45	.00	.10	.22
Cigarettes	46	68	45	0	8	171
Cig. Ads /Capita		.17	.52	.00	.10	.25

[1]The total population figure is less than the sum of the groups because Hispanics are counted twice: once as persons of Spanish origin and again according to race (e.g., whites, blacks).

Table 4

Linear probability analysis of the relationship between topic of billboard advertisements and modeled social cues (N=796).

Predictor variables		Std. Beta	R^2 Change
Block 1			.20***
Presence of people in ads		.45***	
Block 2			.07***
Reward cues:	romance	.19***	
	sportiness/active life-style	.18***	
	sociability/friendship	.14**	
	vacationing/recreation	.13***	
	adventure/risk	.08*	
Block 3			.04***
Attractiveness cues:	sex appeal	.23***	
	machismo	.22***	
	fame/expertise	-.06+	
	friendliness	-.10	
	SES	-.03	
	fashion	-.01	
Block 4			.01**
Similarity:	black model/black neighborhood	.08	
	white model/white neighborhood	-.06	
	Hispanic model/Hisp. neighborhood	.05	
	TOTAL R^2		.32***

Note: *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$; + $p \leq .10$

FIGURE 1:
Modeling of social cues on billboards